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## (54) FLASH-FIXABLE TONER

(57)Abstract:

PROBLEM TO BE SOLVED: To provide a low-cost flash-fixable toner having high IR absorbing ability and satisfactory flash fixability by adding an IR absorber after dissolution in a bonding resin forming the matrix of toner particles.
SOLUTION: The flash-fixable toner consists essentially of a bonding resin, a colorant and an IR absorber having the max. absorption at 750-1,100 nm wavelength. The TR absorber has been dissolved in the bonding resin and the amt. of the IR absorber is 0.01-1 wt.% of the total amt. of the toner compsn. Turbidity measured at the time when the IR absorber is added by 0.1 pt.wt. to 100 pts.wt. of the bonding resin is ≤10. Since heat is locally generated at the part of the IR absorber in flash fixation and the IR absorber is in a dissolved state, that is, in a finely dispersed state on a molecular level, satisfactory fixability is ensured even if the amt. of the IR absorber added is reduced.

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## CLAIMS

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[Claim(s)]

[Claim 1] It is the flash plate fixing toner characterized by being the flash plate fixing toner which consists of the resin for binding, a coloring agent, and an infrared-absorption agent, and for the aforementioned infrared-absorption agent having the maximum absorption wavelength in wavelength of 750-1100nm at least, and dissolving the aforementioned infrared-absorption agent in the resin for binding, and being in the range whose addition of the aforementioned infrared-absorption agent is 0.01 % of the weight - 1% of the weight of the whole toner constituent further.

[Claim 2] The flash plate fixing toner according to claim 1 which is that from which the turbidity which it measured when the aforementioned infrared-absorption agent carried out 0.1 weight section addition to the aforementioned resin 100 weight section for binding becomes ten or less.

[Claim 3] The flash plate fixing toner according to claim 1 whose aforementioned coloring agents are coloring agents other than black.

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## DETAILED DESCRIPTION

[Detailed Description of the Invention]
[0001]
[The technical field to which invention belongs] this invention relates to a flash plate fixing toner. When it states in detail, it is related with a cheap flash plate fixing toner economically good [ this invention / flash plate fixing nature ].
[0002]
[Description of the Prior Art] As a picture fixing method to the printed matter-ed in an electrophotography method, the heat roll method is mainly used conventionally. However, this method lets printed matter-ed, such as paper by which image formation was carried out with the toner, pass between heating rollers, and since blinding is started in the fixing section since it is what carries out thermocompression bonding of the toner to printed matter-ed, or a picture is crushed, it has problems -- the kind of printed matter-ed to which resolution falls is restricted.
[0003] Although a flash plate fixing method is a kind of the non-contact establishing method and it is the fixing method which does not have a problem in a heat roll method which was described above, and was excellent, since it is what is fused and established because the component in a toner absorbs the light of a xenon flash tube, especially infrared light, or it does not have the absorbing power of infrared light, in the color toner using a weak coloring material, poor fixing arises mostly.
[0004] As a method of solving the problem that such fixing is poor, carrying out distributed combination of the infrared-absorption agent which has an optical-absorption peak in wavelength of 800-1100nm in a flash plate fixing toner is proposed by JP,63-161460,A. Moreover, adding the specific compound which has an optical-absorption peak to a toner constituent 1 % of the weight to 10% of the weight to 800-1100nm is proposed by JP,60-57858,A, JP,60-63546,A, and JP,61-132959,A.
[0005]
[Problem(s) to be Solved by the Invention] In the toner shown in JP,63-16146,A, since it is in the state which the infrared-absorption agent distributed in the binding resin, in order to fully dissolve a binding resin by exoergic operation of such an infrared-absorption agent, it is not not only efficient, but an addition increases inevitably and it will become disadvantageous economically.
[0006] Moreover, also in the toner shown in JP,60-57858,A, JP,60-63546,A, and JP,61-132959,A, the compound which is shown in these in addition to there being comparatively many additions like the above was the matter with the dark color tone, although there was little absorption of a visible region, and the color contamination by the infrared-absorption agent was what poses a problem and also produces the problem to the electrification nature of a toner etc. from structure, a functional group, etc. of these compounds again.
[0007] Therefore, this invention makes it a technical problem to offer a new flash plate fixing toner. this invention makes it a technical problem to have high infrared-absorption ability again and for flash plate fixing nature to offer a cheap flash plate fixing toner economically good.
[0008]
[Means for Solving the Problem] Many above-mentioned purposes are attained by following the (1) - (3).
[0009] (1) The flash plate fixing toner characterized by being the flash plate fixing toner which consists of the resin for binding, a coloring agent, and an infrared-absorption agent, and for the aforementioned infrared-absorption agent having the maximum absorption wavelength in wavelength of 750-1100nm at least, and for the infrared-absorption agent dissolving in the resin for binding, and being in the range whose addition of the aforementioned infrared-absorption agent is 0.01 % of the weight - 1% of the weight of the whole toner constituent further.
[0010] (2) The flash plate fixing toner according to claim 1 which is that from which the turbidity which it measured when the aforementioned infrared-absorption agent carried out 0.1 weight section addition to the aforementioned resin 100 weight section for binding becomes ten or less.

[0011] (3) The flash plate fixing toner according to claim 1 whose aforementioned coloring agents are coloring agents other than black.

[0012]

[Function] Thus, in this invention, where the infrared-absorption agent added in a flash plate fixing toner is dissolved into the resin for binding which constitutes the matrix of a toner particle, it blends. In flash plate fixing, since it is what heat generates locally in the portion of infrared-absorption material, if differential powder of the infrared-absorption agent is carried out in the dissolution state, i.e., molecule level, into the matrix, even if it lessens an addition, sufficient fixing nature is expectable. Furthermore, since an infrared-absorption agent exists uniformly in a matrix, there is little local generation of heat at the time of flash plate irradiation, and since it generates heat uniformly, there is no poor partial fixing. Moreover, since an addition decreases in this way, there is almost no influence on the color tone of the toner by addition of an infrared-absorption agent and electrification nature, and, also economically, it will become advantageous.

[0013]

[Embodiments of the Invention] Hereafter, this invention is explained more to a detail based on an embodiment.

[0014] As the resin for binding used in the flash plate fixing toner of this invention Although resins, such as the copolymer system containing styrene with for example, not the thing limited especially but a polystyrene system, styrene, an acrylic ester (meta) and acrylonitrile, or a maleate, the poly (meta) acrylic-ester system, a polyester system, a polyamide system, an epoxy system, a phenol system, a hydrocarbon system, and a petroleum system, are mentioned, epoxy resins, such as polyester resin, or bisphenol A/epichlorohydrin, are mentioned preferably. these resins are independent -- it is -- although two or more sets are seen and it can use, the resin and additive of further others can also be used together

[0015] Moreover, it is a coloring agent. Each of ** and well-known things can use it conventionally. For example, carbon black, Black coloring agents, such as furnace black and acetylene black, the chrome yellow, cadmium yellow, A Synthetic Ochre, a Titanium Yellow, chrome yellow, naphthol yellow, a Hansa Yellow, A pigment yellow, benzidine yellow, permanent yellow, and quinoline yellow lake, Yellow coloring agents, such as ANSURA pyrimidine yellow, a permanent orange, A molybdenum orange, the Balkan Peninsula first orange, a benzine orange, Orange coloring agents, such as an indanthrene brilliant orange, an iron oxide, umber, Browning agents, such as permanent Brown, red ocher, rose red ocher, Antimony powder, a Permanent Red, fire red, a brilliant carmine, Light fast red toner, permanent carmine, and pyrazolone red, Bordeaux, helio bordeaux, a rhodamine lake, E. I. du Pont de Nemours oil red, Red coloring agents, such as thioindigo red, thioindigo MARUN, and Watchung-Red strontium, Purple coloring agents, such as cobalt purple, first violet, dioxane violet, and a Violet Lake, A methylene blue, the aniline bule, cobalt blue, cerulean blue, A KARUKO oil blue, a non-metal copper phthalocyanine blue, a copper phthalocyanine blue, Blue coloring agents, such as ultra marine blue, indanthrene blue, and indigo, A chrome green, a cobalt green, the pigment green B, a green gold, a pigment or colors, such as a Phthalocyanine Green, malachite green oxalate, and a poly chromium bromine copper phthalocyanine, can be illustrated, and these pigments or colors are independent -- or two or more sets are seen and it can use [, such as a green stain agent ]

[0016] In addition, in the case of the color toner using coloring agents other than black, an effect is large [ the flash plate fixing toner of this invention ] especially in order to aim at improvement of the flash plate fixing nature by addition of an infrared-absorption agent.

[0017] Although especially these coloring agents are not limited, it is desirable that it is that by which 3-15 weight section combination is carried out to the resin 100 weight section for binding into a toner constituent.

[0018] As for the flash plate fixing toner of this invention, it comes to add an infrared-absorption agent further. As an infrared-absorption agent used in this invention, that whose maximum absorption wavelength is 750-1100nm is desirable, and is 800-1100nm more preferably. A deer is carried out and this infrared-absorption agent is made into the state where it dissolved into the resin for binding, in the flash plate fixing toner of this invention. Since the infrared-absorption agent blended into the resin for binding will distribute on molecule level when an infrared-absorption agent dissolves into the resin for binding, even if it can discover enough the original capacity which an infrared-absorption agent has and is few additions, it is because it becomes what can fuse the resin for binding effectively by the exoergic operation at the time of flash plate fixing.

[0019] the method using what the infrared-absorption agent itself dissolves in the resin concerned in order to consider as the state where the infrared-absorption agent was dissolved in the resin for binding -- or there is a method using the resin which dissolves an infrared-absorption agent as a compatibilizer

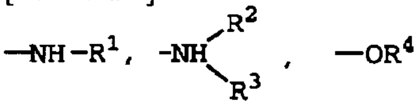
[0020] There is the method of measuring the turbidity of the resin containing an infrared-absorption agent as a method of evaluating the dissolution state to the resin of an infrared-absorption agent. In addition, the value of turbidity shown in this specification is a value which added the infrared-absorption agent 0.1 sections to the resin (it contains this in adding compatibilizer.) 100 weight section for binding, fabricated the resin containing the infrared-absorption agent which carried out melting kneading for 10 minutes at 120 degrees C using the lab plastic strike mill on the film with a thickness of 0.3mm, and measured this film with the turbidity meter (ND-1000DP, product made from the Nippon Denshoku industry).

[0021] In this invention, to choose an infrared-absorption agent is desired so that the turbidity at the time of adding to the resin for binding which uses an infrared-absorption agent may become 8% or less more preferably 10% or less. When it is necessary to make [ many ] the addition of an infrared-absorption agent in order to obtain fixing nature sufficient by flash plate fixing, and turbidity exceeds 10%, and an addition increases, it is because there is a possibility that the bad influence to the toner color tone of an infrared-absorption agent, electrification nature, etc. may arise and it will become very [ in cost ] disadvantageous.

[0022] As the example of the infrared-absorption agent used in this invention since the solubility is influenced by the kind of resin for binding used etc. -- generally -- ****** -- being hard -- although it is a place, in order to raise the thing of (a) cyanine compound system, a G MONIUMU compound system, and an aminium compound system, or (b) solubility, nickel complex compound system which comes to introduce a functional group as shown below, a phthalocyanine compound system, an anthraquinone compound system, a naphthalocyanine compound system, etc. can be used, for example

[0023]

[Formula 1]



$$-NH-R^1,\ -NH\begin{matrix}R^2\\ \\ R^3\end{matrix},\quad -OR^4$$

[0024] (R1-R4 are the alkyl group of C1-C20, a phenyl group, a tolyl group, the Kisiel machine, a naphthyl group, an ethyl phenyl group, a propyl phenyl group, a butylphenyl group, or a naphthyl group independently among a formula, respectively.)

In addition, since unlike heat roll fixing flash plate fixing carries out absorption generation of heat of the irradiation light (mainly near-infrared light with a wavelength of 800nm - 1100nm) of a xenon flash tube and is established, it reaches the temperature of 300 degrees C - about 600 degrees C in instant. For this reason, there is a possibility of causing [ of the void (white omission) in the fixing picture according that it is a low thing to cracked gas ] generating, the pyrolysis start temperature, i.e., the heat-resistant temperature, of an infrared-absorption agent. Therefore, as for the heat-resistant temperature of an infrared-absorption agent, it is desirable that it is 230 degrees C or more, and 250 degrees C or more are 300 degrees C or more most preferably.

[0025] Let the addition of such an infrared-absorption agent be 0.01 % of the weight - 1% of the weight of the rate of the whole toner constituent in the flash plate fixing toner of this invention. That is, a possibility that an addition may become difficult [ it / to obtain sufficient fixing nature ] even if an infrared-absorption agent dissolves in the resin for binding and is distributing on molecule level in less than 0.01 % of the weight is high, and it is it will not only to become disadvantageous economically, but for a possibility of having a bad influence on the color tone of a toner, electrification nature, etc. to arise on the other hand, although it is satisfactory in any way in respect of fixing nature when an addition exceeds 1 % of the weight.

[0026] It is possible to blend additives, such as a wax component, a charge control agent, and a plasticizer, with the flash plate fixing toner of this invention if needed further.

[0027] As a wax component, a polyolefine system wax, a natural wax, etc. use, and it is ******. As a polyolefine system wax, they are polyethylene and polypropylene. Although a copolymer with a polybutylene, an ethylene propylene rubber, an ethylene-butene copolymer, an ethylene-pentene copolymer, an ethylene-3-methyl-1-butene copolymer or an olefin and other monomers, for example, vinyl esters, halo olefins, acrylic esters (meta), an acrylic acid (meta), or its derivative etc. is mentioned, it is desirable that it is that the weight average molecular weight of whose is 1000 to about 45000. Moreover, as a natural wax, a cull burner low, montan wax, native paraffin, etc. can be illustrated.

[0028] As a charge control agent, a Nigrosine, monoazo color, zinc, hexadecyl succinate, alkyl ester [ of a naphthoic acid ] or alkylamide, nitro-humic-acid, N, and N-tetramethyl diamine benzophenone, N, and N-tetramethyl benzidine, triazine, a salicylic-acid metal complex, etc. can be illustrated, for example. In the gestalt of the color toner whose coloring agents used in the flash plate fixing toner of this invention are things other than black, the thing of colorlessness or light color is desirable as an electric charge control agent.

[0029] Moreover, as a plasticizer, organic particles, such as non-subtlety particles, such as colloidal silica, a hydrophobic silica, a hydrophobic titania, a hydrophobic zirconia, and talc, other polystyrene beads, and an acrylic resin (meta) bead, etc. may be used, for example.

[0030] As the process of the flash plate fixing toner of this invention It is not what is limited, as long as a toner particle is obtained, after the infrared-absorption agent has dissolved into the resin for binding. A resin for binding which was described above, a coloring agent, an infrared-absorption agent, and the additive blended if needed in addition to this The specified quantity every The melting kneading method for blending, cooling-grinding, classifying after melting kneading, and obtaining a toner particle, Or the suspension-polymerization method for obtaining a toner particle and other various well-known processes are employable by making the polymerization nature constituent which comes to blend a coloring agent, an infrared-absorption agent, etc. into the monomer which forms a binding resin by the polymerization suspend in an aquosity medium, and carrying out the polymerization of the aforementioned monomer.

[0031] Thus, although the flash plate fixing toner concerning this invention obtained is influenced in the target resolution etc. in a xerography, let more preferably 5-15 micrometers of mean particle diameters be an about 5-10-micrometer thing, for example.

[0032] The flash plate fixing toner of this invention can be used suitable for various kinds of uses, such as printers, such as for example, bar code printing, label printing, tag printing, the Carlsson method, or an ion flow method, and a copy, and also in the operation gestalt colorized especially, cheaply, since the product which is alike and demonstrates good flash plate fixing nature can be offered, it can respond to the request of colorization of the picture in these uses easily.

[0033]

[Example] this invention is more concretely explained based on an example below. In addition, unless especially "%" and the "section" refuse below, it is based on a weight.

[0034]

Example 1 Polyester resin (the tough ton NE1110, Kao make) The 100 sections Copper phthalocyanine blue (the RIONO ruble ES, Toyo Ink make) The five sections Charge control agent (BONTORON E82, product made from the Orient chemical industry) The one section Infrared-absorption agent The 0.3 sections (OKUTAKISU (ARININO) OKUTAKISU (phenylthio) vanadyl phthalocyanine)

After mixing the above-mentioned toner constituent enough with a powder-mixing machine (a high speed mixer, product made from the Fukae industry), melting kneading was carried out with the lab plastic strike mill (product made from an Oriental energy machine). After cooling this kneading object, coarse grinding was carried out and it pulverized with the jet mill further. The obtained pulverizing object was classified with the pneumatic elutriation machine, and blue fine particles of 9.2 micrometers of average ****** were obtained.

[0035] Hydrophobic-property silica R972 (product made from Japanese Aerosil) 0.4% was added in this blue fine-particles 100 section, uniform mixture was carried out by the Henschel mixer, and the toner (1) was obtained.

[0036] Thus, the method as shown below estimated to the obtained toner (1) about the void of fogging on the degree of fixing, a color tone, and a picture, and a fixing picture. The obtained result is shown in Table 1.

[0037] Moreover, it measured by the method that the thermal resistance of the solubility (turbidity) of the infrared-absorption agent to the resin for binding in the above-mentioned toner constituent, the maximum absorption spectrum of the infrared-absorption agent in the state where it was blended with the resin for binding, and an infrared-absorption agent is shown below separately, respectively. The obtained result is shown in Table 2.

[0038]

Make it be the same as that of an example 1 using the toner constituent of the 2 example 0.9 section above. Styrene acrylic resin (TB-1000, made in 3 ** Chemicals) The 80 sections Styrene acrylic resin (ST-95, made in 3 ** Chemicals) The 20 sections Red pigments (Lionel Red CP-A, Toyo Ink make) The seven sections Charge control agent (BONTORON E82, product made from the Orient chemical industry) The one section Infrared-absorption agent (Kayasoub CY10, Nippon Kayaku make The toner (2) was obtained. In addition, average ****** of this toner (2) was 9.5 micrometers.

[0039] The performance evaluation was performed like [ toner / (2) / which was obtained ] the example 1. The obtained result is shown in Table 1. Characterization was performed like the example 1 about the infrared-absorption agent furthermore used. The obtained result is shown in Table 2.

[0040]

Example 3 Polyester resin (the tough ton NE1110, Kao make) The 100 sections Red pigments (Lionel Red CP-A, Toyo Ink make) The five sections Charge control agent (BONTORON E82, product made from the Orient chemical industry) The one section Infrared-absorption agent The 0.1 sections (OKUTAKISU (ARININO) OKUTAKISU (phenylthio) vanadyl phthalocyanine)

The toner (3) was obtained like the example 1 using the above-mentioned toner constituent. In addition, average ****** of this toner (3) was 8.4 micrometers.

[0041] The performance evaluation was performed like [ toner / (3) / which was obtained ] the example 1. The obtained result is shown in Table 1.

[0042] In the toner constituent in the example 1 of comparison, and two examples 1 and 2, it considered as the composition which does not add an infrared-absorption agent, respectively, and the toner for comparison (C1) and (C2) were obtained by the same method as examples 1 and 2.

[0043] This toner for comparison (C1) and (C2) were used as a color tone standard toner at the time of carrying out color tone evaluation. In addition, about other performances, it evaluated like the example 1. The obtained result is shown in Table 1.

[0044] The toner for comparison (3) was obtained like the example 2 except making an infrared-absorption agent into the cyanine system compound (Kayasoub CY17, Nippon Kayaku make) 3 section in example of comparison 3 example 2. The performance evaluation was performed like [ toner / which was obtained / (C3) ] the example 1. The obtained result is shown in Table 1. Characterization was performed like the example 1 about the infrared-absorption agent furthermore used. The obtained result is shown in Table 2.

[0045] The toner for comparison (C4) was obtained like the example 1 except making an infrared-absorption agent into the nickel complex system compound (bis(1,2-diphenylethene-1,2-dithiol)nickel) 1 section in example of comparison 4 example 1.

[0046] As a result of observing the melting kneading object in a lab plastic strike mill, the particle of an infrared-absorption agent has checked with the naked eye.

[0047] The performance evaluation was performed like [ toner / which was obtained / (C4) ] the example 1. The obtained result is shown in Table 1. Characterization was performed like the example 1 about the infrared-absorption agent furthermore used. The obtained result is shown in Table 2.

[0048] The toner for comparison (C5) as well as the toner for comparison (3) was obtained except making the infrared-absorption dose of the toner 3 for example of comparison 5 comparison into the 0.5 sections. The performance evaluation was performed like [ toner / which was obtained / (C5) ] the example 1. The obtained result is shown in Table 1.

[0049] (Performance evaluation)

- The developer which consists of the degree examination toner of fixing 4 section and the acrylic denaturation silicon resin covering carrier 96 section is set to a commercial copying machine (the LEO dry cleaning 7610, Toshiba make), and after creating a non-established picture, flash plate fixing was carried out using the xenon flash tube.

[0050] The tape friction test using the Scotch whisky mending tape (product made from 3M) was presented with this flash plate fixing picture, and the picture survival rate after tape ablation was evaluated as a degree of fixing.

[0051] The picture survival rate after tape ablation measured the picture concentration before and behind tape ablation, and computed it by the following formula.

[0052]

[Equation 1] Degree (%) of fixing =(picture concentration before picture concentration / tape ablation after tape ablation) x100 picture concentration was measured using the Macbeth reflection density meter RD514 type (product made from A division kollmorgen Corp).

[0053] - The color tone of a color tone evaluation flash plate fixing picture and the oven-fusing picture of a color tone standard toner (the toner for comparison (C1), (C2)) was compared with the naked eye, and the influence on the color tone by the infrared-absorption agent was investigated. In addition, evaluation was based on the four steps of following criteria.

[0054] O The influence on a color tone is not accepted.

[0055] O It is satisfactory although the influence on a color tone is accepted slightly.

[0056] The influence on a ** color tone is accepted.

[0057] x The influence on a color tone is large and the color tone is changing clearly.

[0058] - Toner fogging of the fogging white picture section on a picture was observed and evaluated using the magnifier 20 times the scale factor of this. In addition, evaluation was based on the criteria of the following three-stage.

[0059] O With no toner fogging.

[0060] Level whose ** toner fogging **** is satisfactory.

[0061] x Toner fogging is a problem mostly.

[0062] - The microscope (one 100 times the scale factor of this) observed and estimated the void (white omission) of the solid section of the void evaluation fixing picture of a fixing picture. In addition, evaluation was based on the criteria of the following three-stage.

[0063] O Generating of a void is not accepted.

[0064] A ** void is accepted a little.
[0065] x Many voids are accepted.
[0066] - Evaluation by being un-established is impossible.
[0067] (Characterization)
- Turbidity (solubility)
The infrared-absorption agent 0.1 sections used to the binding resin 100 section used in each toner composition in each above-mentioned example and the example of comparison were added, the resin containing the infrared-absorption agent which carried out melting kneading for 10 minutes at 120 degrees C using the lab plastic strike mill was fabricated on the film with a thickness of 0.3mm, and this film was measured with the turbidity meter (ND-1000DP, product made from the Nippon Denshoku industry).
[0068] - The maximum absorption spectrum (lambdamax) was measured with the spectrophotometer using the film used for measurement of the turbidity of the maximum absorption spectrum above.
[0069] - The thermal resistance of the infrared-absorption agent which carried out heat-resistant use was measured by the following method using thermal-analysis equipment DTG-50H (Shimadzu make). Under nitrogen-gas-atmosphere mind, by 20-degree-C programming rate for /, the temperature up of the infrared-absorption agent was carried out, and it was made into heat-resistant temperature (pyrolysis start temperature) with weight reduction temperature 5% from the weight of 100 degrees C.
[0070]
[Table 1]

| | トナー | 赤外線吸収剤* | 添加量 PHR | トナー粒子径 μm | 定着度 % | 色調評価 | カブリ | ボイド |
|---|---|---|---|---|---|---|---|---|
| 実施例1 | (1) | A | 0.3 | 9.2 | 93 | ◎ | ○ | ○ |
| 実施例2 | (2) | B | 0.9 | 9.5 | 78 | ○ | ○ | △ |
| 実施例3 | (3) | A | 0.1 | 8.4 | 85 | ◎ | ○ | ○ |
| 比較例1 | (C1) | – | 0 | 9.3 | 11 | ﾄﾅｰ(1)の標準 | ○ | – |
| 比較例2 | (C2) | – | 0 | 8.7 | 23 | ﾄﾅｰ(2)の標準 | ○ | – |
| 比較例3 | (C3) | C | 3.0 | 9.7 | 76 | × | × | × |
| 比較例4 | (C4) | D | 1.0 | 9.2 | 26 | ○ | × | – |
| 比較例5 | (C5) | C | 0.5 | 9.1 | 32 | ○ | △ | – |

* A オクタキス（アリニノ）オクタキス（フェニルチオ）バナジルフタロシアニン
B Kayasoub CY10、日本化薬製
C Kayasoub CY17、日本化薬製
D ビス（1，2－ジフェニレセン－1，2－ジチオール）ニッケル

[0071]
[Table 2]

| 赤外線吸収剤 | 分類 | 濁度 % | $\lambda_{MAX}$ nm | 耐熱温度 ℃ |
|---|---|---|---|---|
| ｵｸﾀｷｽ(ｱﾘﾆﾉ)-ｵｸﾀｷｽ(ﾌｪﾆﾙﾁｵ)-ﾊﾞﾅｼﾞﾙﾌﾀﾛｼｱﾆﾝ | フタロシアニン系化合物 | 1.1 | 964 | 342 |
| CY10 | シアニン系化合物 | 3.5 | 799 | 259 |
| CY17 | シアニン系化合物 | 11.7 | 807 | 204 |
| ﾋﾞｽ(1,2-ｼﾞﾌｪﾆﾚｾﾝ-1,2-ｼﾞﾁｵｰﾙ)ﾆｯｹﾙ | ニッケル錯体化合物 | 分散不良 | 869 | 300 |

[0072]
[Effect of the Invention] As stated above, it sets to the flash plate fixing toner of this invention. Since the added infrared-absorption agent is made into the state where it dissolved in the resin for binding In order that an infrared-absorption agent may discover the effect most efficiently, an addition is very a thing which is called 1 or less % of the weight of lows and which little-comes out and ends compared with the conventional flash plate fixing toner. Thus, the effect that the influence on electrification by the infrared-absorption agent which color tone contamination of the toner by the infrared-absorption agent reduces by making an addition very few is mitigated is acquired. Still more generally, since an infrared-absorption agent is very expensive, reducing the addition has the large price reduction effect of a toner.
[0073] The flash plate fixing nature which was more excellent in it being that from which the turbidity furthermore

measured when the aforementioned infrared-absorption agent carried out 0.1 weight section addition to the aforementioned resin 100 weight section for binding in this invention becomes ten or less can be expected, and an improvement effect of flash plate fixing nature is desired especially in the mode which is the color toner whose aforementioned coloring agents are coloring agents other than black.

[0074] Moreover, there is no decomposition of an infrared-absorption agent that the heat-resistant temperature of the infrared-absorption agent used in this invention is 230 degrees C or more at generation of heat at the time of flash plate irradiation, and fear of generating of the void (white omission) in the fixing picture by cracked gas is also lost.

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[Translation done.]